

Application No. 10/813,306
Amendment "A" dated November 18, 2005
Reply to Office Action mailed August 24, 2005

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

1. (Currently Amended) A lens for use with a light-emitting device when curing a dental composition within a dental preparation, comprising:

a connector body that couples or attaches to a light-emitting device so as to capture at least some of the light emitted by the light source of the light-emitting device;

a light guide extending from the connector body, said light guide having a proximal end adjacent to said connector body and a distal end, the proximal end of said light guide having a cross-sectional diameter that is no larger than half the cross-sectional diameter of said connector body in order to facilitate placement of said light guide within a dental preparation during a dental restoration procedure; and

a ball or substantially rounded shape at [[an]] the distal end of the light guide distal to the connector body, said light guide being sufficiently rigid as to enable said ball or substantially rounded shape to hold a matrix band against a tooth adjacent to a dental preparation during use.

2. (Original) A lens as recited in claim 1, wherein said light-emitting device includes a light source comprising at least one LED or ILED array.

3. (Original) A lens as recited in claim 1, wherein said light emitting device includes a light source comprising at least one of a halogen light, a plasma arc light, or a laser diode.

4. (Original) A lens as recited in claim 1, wherein said connector body is configured so as to releasably attach the lens to a light-emitting device.

5. (Original) A lens as recited in claim 4, wherein said connector body is configured so as to releasably attach the lens to a light-emitting device by a snap fit, a friction fit, a threaded coupling, or a bayonet coupling.

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6. (Original) A lens as recited in claim 1, wherein said connector body is configured so that the lens is integrally attached to a light-emitting device.

7. (Original) A lens as recited in claim 1, wherein said light guide is substantially cylindrical.

8. (Original) A lens as recited in claim 7, wherein the ball has a diameter substantially equal to that of the cylindrical light guide.

9. (Original) A lens as recited in claim 1, wherein said light guide is tapered.

10. (Original) A lens as recited in claim 1, wherein the ball has a diameter ranging from about 1 mm to about 6 mm.

11. (Original) A lens as recited in claim 1, wherein the ball has a diameter ranging from about 2 mm to about 4 mm.

12. (Original) A lens as recited in claim 1, wherein said connector body has a hollow interior.

13. (Original) A lens as recited in claim 12, further comprising a focusing lens at least partially disposed within said hollow interior of said lens body.

14. (Original) A lens as recited in claim 13, wherein said focusing lens comprises a curved surface through which light enters and a light-emitting tip through which light energy exits into said elongate light guide.

15. (Original) A lens as recited in claim 13, wherein said focusing lens, said elongate light guide, and said ball are formed as one integral piece.

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16. (Original) A lens as recited in claim 13, wherein said focusing lens, said elongate light guide, and said ball are formed from one or more of acrylic, polyacrylic, polycarbonate, silicone, aluminum dioxide, sapphire, quartz, glass, or other transparent or translucent material.

17. (Original) A lens as recited in claim 13, wherein said focusing lens, said elongate light guide, and said ball are formed from one or more of urethane, polyurethane, silicone, or polyethylene.

18. (Currently Amended) A light curing system for use in filling a dental preparation, the light curing system comprising:

a light-emitting device that emits a footprint of light energy; and

a lens adapted for use with the light-emitting device, the lens comprising:

a connector body that couples or attaches to a light-emitting device so as to capture at least some of the light emitted by the light source of the light-emitting device;

a light guide extending from the connector body, said light guide having a proximal end adjacent to said connector body and a distal end, said light guide being substantially cylindrical in order to facilitate placement of said light guide within a dental preparation during a dental restoration procedure; and

a ball or substantially rounded shape at [[an]] the distal end of the light guide distal to the connector body, said light guide being sufficiently rigid as to enable said ball or substantially rounded shape to hold a matrix band against a tooth adjacent to a dental preparation during use.

19. (Original) A light curing system as recited in claim 18, wherein said light-emitting device includes a light source that comprises at least one of a halogen bulb, an incandescent bulb, a fluorescent bulb, a plasma arc light, or a laser diode.

20. (Original) A light curing system as recited in claim 18, wherein said light-emitting device includes a light source comprising at least one LED or LCD array.

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21. (Original) A light curing system as recited in claim 18, wherein said light-emitting device comprises a fiber optic light guide configured to capture and transmit light generated by a light source of said light-emitting device.

22. (Currently Amended) A method for curing a light curable composition within a dental preparation, comprising:

providing a lens as recited in claim 1;
applying a layer of a light curable composition to a dental preparation; and
using said ball or substantially rounded shape to hold a matrix band against an adjacent tooth prior to and/or while incrementally curing said composition.

23. (New) A lens for use with a light-emitting device when curing a dental composition within a dental preparation, comprising:

a connector body that couples or attaches to a light-emitting device so as to capture at least some of the light emitted by the light source of the light-emitting device;

a light guide extending from the connector body, said light guide having a proximal end adjacent to said connector body and a distal end; and

a ball at the distal end of the light guide, wherein said ball has a diameter ranging from about 1 mm to about 6 mm, said light guide being sufficiently rigid as to enable said ball to hold a matrix band against a tooth adjacent to a dental preparation during use.

24. (New) A lens as recited in claim 23, wherein said ball has a diameter ranging from about 2 mm to about 4 mm: